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The effect of osteoporotic treatment on the functional outcome, re-fracture rate, quality of life and mortality in patients with hip fractures: A prospective functional and clinical outcome study on 520 patients

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ABSTRACT

Numerous high quality studies have shown the positive effects of various osteoporotic medical treatment regimens on bone mass and on the reduction of risk for new spinal, hip and non-spinal fractures in osteoporotic patients. However, the effect of osteoporotic treatment on the functional and clinical outcome of patients who have sustained hip fractures and been treated surgically has not yet been addressed.

Five hundred and twenty patients out of 611 who were admitted (2009–2011), operated on due to a hip fracture and completed their follow-up evaluations were included in this study. Data related to functional outcome scores, re-fracture rate, quality of life and mortality rate were prospectively recorded, analysed and correlated to osteoporotic medical treatment. There were 151 (25%) men and 369 (71%) women with a mean age of 80.7 years (range, 60 to 90 years). At a mean follow-up of 27.5 months (range, 24 to 36 months) a mortality rate of 23.6% at 2 years was recorded. Mean values of functional and quality of life scores were found to have progressively improved within two years after surgery. Seventy-eight (15%) patients were taking osteoporotic treatment before their hip fracture and 89 (17.1%) started afterwards. Osteoporotic treatment proved to be an important predictor of functional recovery (all p values < 0.05), re-fracture rate ($p = 0.028$) and quality of life (EQ-5D, all dimensions, p values < 0.05). Osteoporotic treatment did not affect post-fracture mortality rates.

Osteoporotic treatment taken before or initiated after fracture is a strong predictor of functional and clinical outcome in patients with hip fractures treated surgically.

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Introduction

Pertrochanteric and femoral neck fractures (hip fractures) are common in the elderly and are usually associated with osteoporosis and minor trauma (falls). Such fractures should be regarded as a unique entity because several parameters other than high quality surgery such as senility, co-morbidities, metabolic disease, rehabilitation, peri-operative complications and social environment may also influence the outcome [1,2]. During treatment, failure to address these parameters can cause significant morbidity and mortality in this elderly group of patients and exponentially increase the global burden of hip fractures [2,3].

It has recently been suggested that improved treatment and multidisciplinary management of these patients are necessary in order to improve functional outcome, quality of life and mortality rates, and various therapeutic protocols have been described, aiming at comprehensive care of these patients [4–6]. Several predictors of outcome and risk factors of surgical intervention have also been evaluated in patients with hip fractures [7–11]. Amongst them, early surgery followed by prompt rehabilitation, are considered to be positive predictors [1,12], while co-morbidities and peri-operative complications such as infection,

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delirium, pressure sores, deep vein thrombosis and hardware failure are considered negative ones [1]. Numerous high quality studies have addressed issues such as epidemiology and reduction of incidence of new fractures, after medical treatment, in patients with osteoporosis [1]. Despite the fact that these fractures are closely associated with osteoporosis, the role of medical treatment for osteoporosis (taken before or started after hip fracture) as a predictor of clinical and functional outcome is not clearly understood [1].

In this study we evaluate the impact of the medical treatment of osteoporosis on postoperative functional outcome, quality of life, complications, re-fracture rate and mortality in 520 patients treated for hip fractures for whom prospectively recorded and analysed relative data were available.

Patients and methods

Six hundred and eleven consecutive patients who had sustained a hip fracture and were admitted to the hospitals of a country region between 2009 and 2011 were considered eligible for participation in this study (Fig. 1). Inclusion criteria were patients with low energy pertrochanteric and femoral neck fractures, aged 60 to 90 years, and the ability to respond to questionnaires (patients with mild to moderate dementia only were included in the study) and attend follow-up clinics. Exclusion criteria were patients with subtrochanteric hip fractures, high energy hip fractures, pathological hip fractures, patients aged <60 and >90 years, and patients having severe systemic disease (mainly cardiac, respiratory and neurologic)

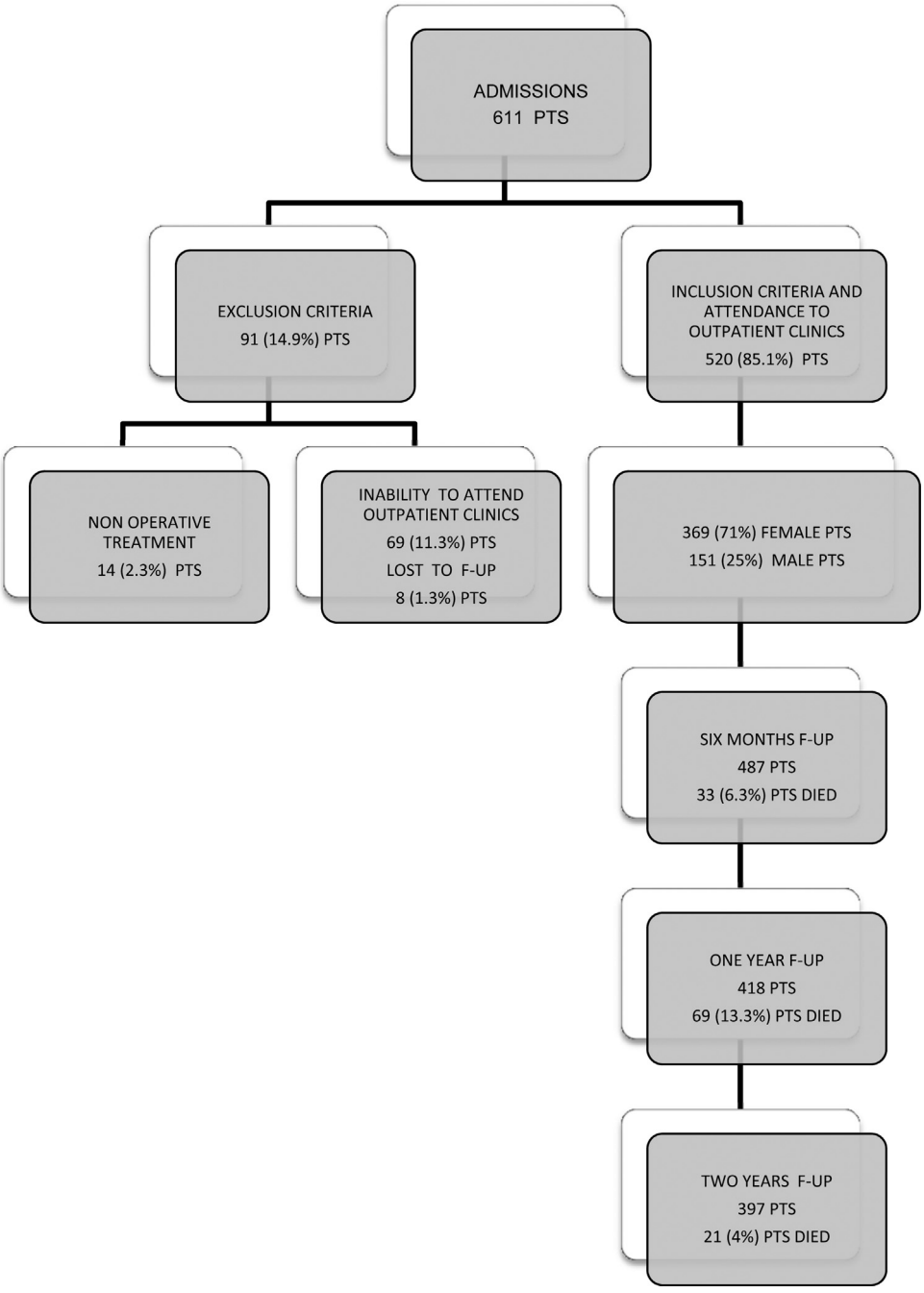

Fig. 1. Study flow chart.

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